REMARKS

Claims 1-18 were reported in the Office Action as pending. Claims 19-23 are withdrawn from consideration. Claims 1-18 are rejected. Claim 1 has been amended. Claims 4-5 and 8 have been cancelled. Claims 1-3, 6, 7, and 9-18 remain.

Reconsideration of the pending claims is respectfully requested in view of the above amendments and the following remarks.

It is asserted in the Office Action that Claims 1-3, 9-14, and 16-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,222,828 issued to Ohlson et al. ("Ohlson") in view of U.S. Patent No. 6,483,553 issued to Jung ("Jung") in view of U.S. Patent Publication No. 2009/0186622 issued to Karabinis ("Karabinis"). Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohlson in view Jung further in view of U.S. Publication No. 2002/0172180 of Hall et al. ("Hall").

In response to the rejection of independent Claim 1, Applicant has amended Claim 1 to recite wherein if the number of pilot spreading codes is less than the number of downlink beams, the same pilot spreading code is reused in downlink beams spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting packets to mobile stations in a forward link of a multibeam satellite communication system; these features of Claim 1 are not disclosed by Ohlson in view of Jung.

Applicannt notes that Ohlson teaches a satellite system where ***a unique code assigned to each subscriber/terminal.*** Ohlson discloses a conventional satellite mobile communications system that uses unique orthogonal CDMA (ODS-CDMA) codes to discriminate among different users or physical channels within a cell or beam to minimize multiple access interference between terminals thereby increasing the number of terminals which may be supported per unit of allocated bandwidth. These ODS-CDMA codes are ***uniquely assigned to each subscriber channel*** (or terminal). For example, Ohlson states,

> [d]uring operation, ***each subscriber channel is assigned a unique code word*** from the set of length **80** orthogonal codewords.

Ohlson, col. 8, lines 33-34 (emphasis added). Ohlson further states,

> ***[e]ach subscriber channel*** (or circuit) ***is assigned one code*** from a set of orthogonal Quadratic Residue codes.

Id., at col. 15, lines 1-3. However, Claim 1 recites "wherein downlink beams of a satellite ***share a same orthogonal spreading code*** set for transmitting packets to the mobile stations among beams by synchronizing and transmitting signals of all beams, and wherein downlink beams of the satellite have a frame structure that shares ***the orthogonal spreading codes among users.***"

Regarding the Examiner's citing of Jung, Jung relates to a TV receiver for digital/analog combined use. As described by Jung, a switch unit forwards a broadcasting signal, tuned at the tuner in response to a control signal, to either an

analog broadcasting processor or a digital broadcasting processor. An auto gain controller receives a gain signal from either an analog broadcasting processor or a digital broadcasting processor, and adjusts a signal gain of the broadcasting signal to allow reception of both analog and digital signals.

The Examiner relies on col. 1, line 36 to col. 2, line 20 of Jung to teach the recited features of Claim 1. The passages referred to by the Examiner, however, describe the European system, which is a coded orthogonal frequency division multiplexing (COFDM) transmission system in which multiple carriers are used. As indicated by the Examiner, the COFDM system uses a signal called pilot, which has a predictable value that is added at every fixed interval in both a frequency access and a time access between carriers of data at a transmitter side before transmission. As indicated by Jung, COFDM system is characterized in the use of multi-carrier intramission as well as the addition of pilots before transmission for use at the receiver side. (See col. 2, lines 18-21.) In contrast with Claim 1, Jung does not teach or suggest wherein if the number of pilot spreading codes is less than the number of downlink beams, the same pilot spreading code is reused in downlink beams spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting packets to mobile stations in a forward link of a multibeam satellite communication system, as in Claim 1. It is improper for the Examiner to rely on Jung to disclose the features of amended Claim 1 since it cannot be said that a COFDM system reuses the same pilot spreading code in downlink beams spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting

packets to mobile stations in a forward link of a multibeam satellite communication system, as in Claim 1. Hence, neither col. 1, line 35 to col. 2, line 21 nor another other portion of Jung discloses or suggests wherein if the number of pilot spreading codes is less than the number of downlink beams, the same pilot spreading code is reused in downlink beams spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting packets to mobile stations in a forward link of a multibeam satellite communication system, as in Claim 1.

The Examiner did not identify any portion of Ohlson in view of Jung and further in view of Karabinis that teaches or suggests wherein if the number of pilot spreading codes is less than the number of downlink beams, the **same pilot spreading code** is **reused** in **downlink beams** spaced apart in a predetermined distance or according to a **predetermined reuse pattern** for **transmitting packets** to **mobile stations** in a **forward link** of a multibeam **satellite communication system**, as in amended Claim 1. Support for the amendment to Claim 1 is provided at least with reference to page 2, paragraph 20 of the publication of Applicants' specification.

As correctly recognized by the Examiner, the combination of Ohlson in view of Jung does not teach reusing spreading codes. As a result, the Examiner cites Karabinis which according to the Examiner teaches spreading code reuse patterns with reference to paragraphs [0060]-[0066]. According to the passages relied on by the Examiner, the base stations of a terrestrial communication network may employ a frequency reuse and/or spreading code reuse patterns to increase an efficiency of frequency usage and/or

capacity and/or reduce interference. We note, however, that each base station, of Karabinis has a relatively small coverage area and sector such that adjacent base stations and/or sectors may use different frequencies and/or different spreading codes to reduce interference therebetween. (See pages 7 and 8, paragraph [0060].) In view of the above passages, Applicant submits that any frequency reuse or spreading code reuse patterns disclosed by Karabinis is expressly limited to frequency or spreading code reuse patterns by base stations. Furthemore, Karabinis discloses that adjacent base stations may use different frequencies or spreading codes to reduce interference therebetween. Conversely, Claim 1, as amended, recites the reuse of a same pilot spreading code in downlink beams that are spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting packets to mobile stations in the forward link of a miltibeam satellite communication system. Since, Karabinis is expressly limited to frequency and spreading code reuse patterns by base stations, Karabinis cannot disclose or suggest reusing the same spreading code in downlink beams spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting packets to the mobile stations in the forward link of the multibeam satellite communication system, as in Claim 1.

Hence, no combination of Ohlson in view of Jung and further in view of Karabinis teaches or suggests wherein if the number of pilot spreading codes is less than the number of downlink beams, the same pilot spreading code is reused in downlink beams spaced apart in a predetermined distanee and aceording to a predetermined reuse pattern for transmitting packets to mobile stations in a forward link of a multibeam

satellite communication system, as in Claim 1.

For each of the above reasons, Claim 1, and all claims which depend from Claim 1, are novel over Ohlson, Jung and Karabinis, as well as the references of record. Please reconsider and withdraw of the §103(a) rejection of Claims 1-3, 6, 9-14, and 16-18 in view of at least the above reasons.

Regarding Hall, Hall also fails to disclose wherein if the number of pilot spreading codes is less than the number of beams, the same pilot spreading code is reused in beams spaced apart in a predetermined distance and according to a predetermined reuse pattern, as in Claim 1. Hence, no combination of Ohlson, Jung, Karabinis and Hall teaches or suggests wherein if the number of pilot spreading codes is less than the number of downlink beams, the same pilot spreading code is reused in downlink beams spaced apart in a predetermined distance and according to a predetermined reuse pattern for transmitting packets to mobile stations in a forward link of a multibeam satellite communication system, as in Claim 1.

Accordingly, reconsideration and withdrawal of the rejections under 35 USC 112, second paragraph is respectively requested.

It is asserted in the Office Action that Claims 1-3, 10-14 and 16-18 are rejected under 35 USC 102(b) as being anticipated by Ohlson et al. (U.S. Pat. No. 6,222,828).

In response, Applicant has amended Claims 1, 2, 4, 12 and 18. Support for the amendments can be found in the specification at least at page 15, 1st paragraph.

Applicant notes that Ohlson fails to teach or suggest at least the amended limitation which includes sharing the *same* orthogonal spreading code among beams and among users. The amended limitation to claim 1 currently recites,

> a multicarrier satellite system using a packet-switching method, wherein downlink beams of a satellite *share a same orthogonal spreading code* for transmitting packets to the mobile stations among beams by synchronizing and transmitting signals of all beams, and wherein downlink beams of the satellite have a frame structure *that shares the orthogonal spreading codes among users*.

Ohlson teaches a satellite system where *a unique code assigned to each subscriber/terminal*. Ohlson discloses a conventional satellite mobile communications system that uses unique orthogonal CDMA (ODS-CDMA) codes to discriminate among different users or physical channels within a cell or beam to minimize multiple access interference between terminals thereby increasing the number of terminals which may be supported per unit of allocated bandwidth. These ODS-CDMA codes are *uniquely assigned to each subscriber channel* (or terminal). For example, Ohlson states,

> [d]uring operation, *each subscriber channel is assigned a unique code word* from the set of length **80** orthogonal codewords.

Ohlson, col. 8, lines 33-34 (emphasis added). Ohlson further states,

> *[e]ach subscriber channel* (or circuit) *is assigned one code* from a set of orthogonal Quadratic Residue codes.

Id., at col. 15, lines 1-3. However, the amended limitations specifically recite "wherein

downlink beams of a satellite *share a same orthogonal spreading code* set for transmitting packets to the mobile stations among beams by synchronizing and transmitting signals of all beams, and wherein downlink beams of the satellite have a frame structure that shares *the orthogonal spreading codes among users*."

Accordingly, Applicant believes the amended limitations overcome the Ohlson reference.

It is asserted in the Office Action that Claims 4-5, and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,222,828 issued to Ohlson et al. ("Ohlson") in view of U.S. Patent No. 6,483,553 issued to Jung ("Jung").

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,222,828 issued to Ohlson et al. ("Ohlson") in view of U.S. Patent Publication No. 2002/0172180 issued to Hall et al. ("Hall").

In response to the above rejections under 35 USC 103(a), Applicant respectfully asserts that since Claims 4, 5, 7 and 8 depend directly or indirectly on Claim 1, are also patentable over the references cited by the Examiner for the same reason given above.

Accordingly, withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

In view of the foregoing, it is believed that all claims now pending, namely Claims 1-3, 6, 7, and 9-18, patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.

If there are any fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666. If a telephone interview would expedite the prosecution of this Application, the Examiner is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Dated: 9/20/2010

Eric Hyman, Reg. No. 30,139

1279 Oakmead Parkway
Sunnyvale, CA 94085-4040
(310) 207-3800

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Linda Metz 9/20/2010